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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,070	09/16/2003	Sean Chang	Q1111	2044

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EXAMINER

GOLUB, MARCIA A

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H:A

Office Action Summary

Application No.

10/663,070

Applicant(s)

CHANG ET AL.

Examiner

Marcia A. Golub

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "positive integer" in **claim 1** is a relative term, which renders the claim indefinite. The term "positive integer" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Since the applicant does not specify the range of numbers for the positive integer, the cavity length of the tunable laser is therefore not defined.

Claim 1 is also being rejected under 112 2nd paragraph, since it is referring to an International Telecommunication Union grid specification. ITU grid is a government standard, which can change over time; therefore causing the scope of the claim change.

Claims 2-7 are included in the rejection for their dependence on claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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Claims 1-7 are rejected under 35 U.S.C. 102(a) as being anticipated by applicants admitted prior art.

Regarding **claim 1** the applicant claims a method of designing a cavity length of a tunable laser to include the steps of "selecting a waveband conforming to an International Telecommunication Union (ITU) grid specification; determining a minimum constant by which the channel frequencies within the waveband can be multiplied to be converted into integers; setting an optical path length of the cavity to be the product of a positive integer number and half the product of the minimum constant, a channel frequency and the corresponding central wavelength; and configuring the cavity length according to the optical path length of the cavity "

However, it is a well known mathematical fact that an integer multiplied by an integer is still an integer. Since the product of the minimum constant and the frequency is a positive integer (as specified in the claim) ($n = kf$), multiplying it by another positive integer will result in yet another positive integer ($n = n \times n$). Therefore, "setting the optical path length of the cavity to be the product of a positive integer and half the product of the minimum constant, a channel frequency and a corresponding central wavelength" ($L = \frac{1}{2}nkf\lambda$) is equivalent to setting the cavity length to be a product of a positive integer and half the product of a positive integer and a corresponding central wavelength ($L = \frac{1}{2}nn\lambda$). Since the product of two integers is an integer and since the range of numbers for the positive integer is not defined, the subject matter claimed is

nothing more than $L = \frac{1}{2}n\lambda$ which is a formula well known in the art and is admitted by the applicant on page 4 of the specification.

Regarding **claims 2 and 4**, Fig 1B of the application discloses a method of designing the cavity length of a tunable laser by means of “controlling the temperature of the cavity within a specific range using a temperature control unit, wherein the temperature control unit comprises an electrical heating regulator and a thermistor” [16 and 17]

Regarding **claims 5 and 7**, Fig 1B of the application discloses a method of designing a cavity length of a tunable laser that includes the steps of “installing a plurality of optical components, wherein the optical components comprise a semiconductor laser [12], a lens [13], a tunable filter [14] and a plane mirror [15].”

Regarding **claims 3 and 6** the application claims a method of designing a cavity length of a tunable laser that includes the steps of “compensating the cavity length for variations caused by assembly tolerance and wherein the step of configuring the cavity length according to the optical path length of the cavity is accomplished according to the optical path length of the cavity and refractive indices of the optical components”.

However, page 2 of the application discloses conventional methods for adjusting the cavity length to be temperature control (which changes the refractive indices of the laser components), adjustment of the position of the plane mirror (which can compensate for the variations caused by assembly tolerance) and an extra-fine tuning mechanism. All of these methods are commonly used for adjusting the wavelength of the laser and the steps claimed are inherent to the wavelength adjustment.

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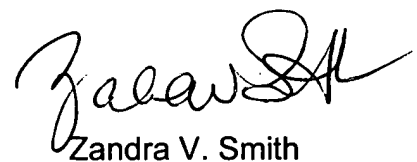
Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-0218. The examiner can normally be reached on M-F 8-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAG

A handwritten signature in black ink, appearing to read 'Zandra V. Smith', with a stylized flourish at the end.

Primary Examiner